

Instructions for authors, subscriptions and further details:

<http://ijep.hipatiapress.com>

## **Children's Reflections on Two Cultural Ways of Working Together: "Talking with Hands and Eyes" or Requiring Words**

Amy L. D. Roberts & Barbara Rogoff<sup>1</sup>

1) University of California, Santa Cruz, United States of America

Date of publication: June 24th, 2012

---

**To cite this article:** Roberts, A., & Rogoff, B. (2012). Children's Reflections on Two Cultural Ways of Working Together: "Talking with Hands and Eyes" or Requiring Words. *International Journal of Educational Psychology*, 1(2), 73-99. doi: 10.4471/ijep.2012.06

**To link this article:** <http://dx.doi.org/10.4471/ijep.2012.06>

---

**PLEASE SCROLL DOWN FOR ARTICLE**

The terms and conditions of use are related to the Open Journal System and to Creative Commons Non-Commercial and Non-Derivative License.

# Children's Reflections on Two Cultural Ways of Working Together: "Talking with Hands and Eyes" or Requiring Words

Amy L. D. Roberts & Barbara Rogoff  
*University of California, Santa Cruz*

## **Abstract**

Forty-four pairs of Mexican-heritage and European-heritage US children were asked to characterize differences between two contrasting cultural patterns of working together in video clips that showed a) Mexican Indigenous-heritage children working together by collaborating, helping, observing others, and using nonverbal as well as verbal communication, and b) middle-class European-American children working alone and using predominantly verbal communication.

Through experience in two cultural settings, bilingual Mexican-heritage US children may become familiar with these contrasting cultural patterns that have been identified in research. Mexican-heritage US children characterized the clips in ways that corresponded with researchers' descriptions more often than did European-heritage children, when discussing working together and helping but not when discussing communication.

The children from the two backgrounds differed in their treatment of talk. In addition to talking more overall, half of the European-heritage US children considered talk a requirement for working together or helping, excluding nonverbal communication as a way of working together or helping. In contrast, the Mexican-heritage US children included nonverbal communication as a means of working together and helping, and some seemed to include nonverbal communication as a form of talking.

**Keywords:** communication, collaboration, nonverbal, culture, Intent  
Community Participation

This study examined whether bilingual Mexican-heritage US children viewing video clips of other children would be more likely than middle-class European American children to identify contrasting cultural patterns of interaction found in previous research. One cultural pattern has been noted among Mexican Indigenous-heritage children: working together with collaboration and helping, attentiveness to others, and extensive nonverbal communication (with or without talk); the other pattern has been observed to be common among middle-class European American children: working primarily solo with reliance on talk.

Many bilingual Mexican-heritage US children are likely to experience these contrasting approaches for working together across their home and school environments. Having experience with two cultural approaches, and transitioning between them, may encourage children to identify and reflect on the cultural practices they are exposed to (Orellana, 2009; Zentella, 1997). In contrast, middle-class European American children are likely to experience similar ways of working together at home and at school, which may make it less likely for them to identify other ways of organizing interaction.

In addition to investigating the correspondence of children's reflections with the two patterns, we were interested in insights that the children might offer regarding cultural differences in ways of working together. As we will discuss, the children's comments revealed unexpected cultural differences in whether they considered working together to be done exclusively through talk and whether nonverbal conversation is a kind of talk.

## **Two Cultural Patterns of Interaction**

Research in Indigenous-heritage communities of the Americas has noted children's extensive collaboration and help in ongoing community activities, observation of others' efforts, and use of nonverbal communication (with or without talk) in reference to ongoing activity (Cazden & John, 1971; Chamoux, 1992; Chavajay & Rogoff, 2002; Correa-Chávez, Roberts, Martinez Pérez, 2011; de Haan, 1999; de Leon, 2000; Gaskins, 1999; Mejía-Arauz, Rogoff, Dexter, & Najafi,

2007b; Paradise, 1994, 1996; Philips, 1972; Rogoff, Mistry, Göncü, & Mosier, 1993). These common ways of working together in Indigenous-heritage communities of Central and North America are posited to form a cultural pattern, called learning through *intent community participation* (Rogoff, Paradise, Mejía-Arauz, Correa-Chávez, & Angelillo, 2003; Rogoff, Moore, Najafi, Dexter, Correa-Chávez, & Solís, 2007; see also Paradise & Rogoff, 2009).

A contrasting cultural pattern emphasizes solo engagement and reliance on verbal communication out of the context of ongoing, shared activity, such as in Western schooling (Candela, 2005; Lipka, 1994; McNaughton, 2005; Philips, 1972; Sharan & Sharan, 1992; Rogoff et al., 2007). Children from highly schooled communities tend to engage in activities individually, even in the presence of a group, rather than in multi-way group engagements that have commonly been found in Indigenous-heritage communities of the Americas (Chavajay & Rogoff, 2002; Mejía-Arauz et al., 2007b; Rogoff et al., 1993, 2003). Middle-class European American children are likely to experience heavy use of talk and a focus on solo work at both home and school (Heath, 1983; Keller et al., 2006; Laosa, 1980; Tapia Uribe, LeVine, & LeVine, 1993).

### **Children's Reflections on Cultural Patterns in the Organization of Interaction**

Many bilingual Mexican-heritage US immigrant children may be familiar with the forms of working together prevalent in Indigenous-heritage communities of the Americas as well as those of schools (Correa-Chávez, Rogoff, & Mejía-Arauz, 2005; Mejía-Aráuz, Rogoff, Najafi, & Dexter, 2007b; Mejia-Arauz, Rogoff, & Paradise, 2005). Mexican immigrants to California often come from rural communities in Michoacán, Jalisco, Guanajuato, and more recently Chiapas and Oaxaca, Mexico, where prior generations in many communities considered themselves Indigenous (López, Correa-Chávez, Rogoff & Gutiérrez, 2010; Passel, 2004). Ethnographic accounts of rural Mexican communities often describe practices that have also been observed in Indigenous communities, including collaboration, helping, observation, and extensive nonverbal communication (Lorente, 2006; López, Najafi,

Rogoff, & Mejía-Arauz, in press).

There are only a few studies of children's reflections on cultural practices. Young children associated their ethnic group membership with participation in cultural routines such as attending church (Marks, Szalacha, Lamarre, Boyd, & Coll, 2007). Similarly, bilingual children are especially aware of properties of language and quickly distinguish when to use which set of linguistic tools as well as the significance of their choices regarding participation in language communities (Bialystok, Craik, Green, & Gollan, 2009; Brown, 2006; Orellana, 2009; Zentella, 1997). The privileged status of school ways may accentuate distinct patterns of interaction for children from nondominant communities (Erickson, 1987; Hurtado & Gurin, 2004).

With practices somewhat uniform across settings, middle-class European American children may have limited opportunities to reflect on the dominant cultural practices of US schools or on the differences between these and other ways of organizing learning. In addition, privileged status may make it difficult for middle-class European American children to notice or discuss racial and ethnic differences.

## **The Present Study**

Our study examined children's reflections on differences in the ways triads of Mexican and US Anglo children, shown in four video clips, worked together as they folded an origami frog during a scripted demonstration. We selected clips that epitomized the cultural contrasts in children's interactions found in prior research (reviewed above). Two clips showed Mexican Indigenous-heritage children collaborating, helping, attentive to each other's folding, and using nonverbal conversation. The other two clips showed middle-class European American children working primarily solo and chatting, with limited helping, observing each other, or nonverbal conversation.

We expected the bilingual Mexican-heritage US children to be more likely than middle-class European American ("Anglo") children to identify the following differences that correspond with patterns found by researchers:

- More *collaboration* and *helping* in the Mexican Indigenous-heritage clips, using more *attention to each other* and *nonverbal communication* (with or without talk),
- More solo work and more exclusively *verbal communication* among the children in the middle-class European American clips.

We also explored the children's explanations of the cultural patterns they saw for potential insights; interesting patterns appeared in their reflections about nonverbal communication and talk.

## Method

### Participants

The participants were 23 pairs of monolingual Anglo children and 21 pairs of bilingual Mexican-heritage US children with likely roots in parts of Mexico with Indigenous histories, all attending California elementary schools. Most of the children were in fourth or fifth grades (ages 9-11); a few children from both backgrounds were in sixth grade; grade levels did not differ significantly across the two backgrounds. All pairs were of the same gender; 12 pairs from each cultural background were female. Children were contacted through their schools or after-school centers. The children's parents provided information on family demographics, nation of origin, and languages spoken in the home in a short telephone or printed questionnaire.

Almost all the Mexican-heritage US children were born in the US (of the 62% whose parents responded to the question, only 8% were born in Mexico). Most of their parents were born in Mexico (only 16% were born in the US). About half of the Mexican-heritage US parents had completed high school ( $M = 10$  grades); 63% worked in service jobs such as hospitality work, childcare, or landscaping. All the Mexican-heritage US pairs reported that they spoke Spanish at home; in 9 of the 21 pairs at least one child also spoke English at home. Most of the Mexican-heritage pairs (76%) had visited Mexico; all had family in Mexico and 3 children had gone to school there.

All of the Anglo children whose parents responded to these questions (83% did so) were born in the US and had parents who were born in the US and had completed at least 12 grades ( $M = 15$  grades). Parents worked a wide range of jobs such as cashiers, administrative assistants,

scientists, and CEOs. All of the Anglo pairs spoke English exclusively at home. Less than half (35%) had been to Mexico, usually to a resort or on a cruise; only 2 children reported having family or friends in Mexico and none had gone to school there.

## **Procedure**

The videotaped sessions took place at a quiet table in the children's school or afterschool center. The bilingual Mexican-heritage research assistant (RA), blind to the hypotheses of the study, followed a script using the language the children preferred, either English or Spanish. In all but one case the interview was held predominantly in English, although several Mexican-heritage US pairs spoke in Spanish to each other and in English to the RA.

The RA first engaged in a warm-up with each pair (decorating a paper bag to keep their origami frog in and conversing). Then she showed the pair how to fold an origami frog, in preparation for viewing videoclips of other children folding the same figure according to the same script. The origami folding script was designed to be informal, encouraging children to help each other and primarily showing rather than telling the children how to make the folds without controlling children's attention or progress (see Mejía-Arauz et al., 2005). The RA then showed the clips to each pair, after which she invited them to view the clips again without her so they could discuss the differences in how the children in the clips interacted. After the children reported their initial ideas of differences, the RA prompted them with questions related to differences observed in research.

***Viewing the clips.*** The pairs of children watched four 20-second clips of children making the origami frog, selected from a previous study (Mejía-Arauz, Roberts, & Rogoff, 2007a). The four clips consisted of a triad of girls and a triad of boys from Guadalajara, Mexico, and a triad of girls and a triad of boys from California. The children in the Mexican video clips were of Indigenous descent, with Indigenous Mexican features; they whispered a few words in Spanish (indecipherable to native speakers). The children in the US clips were white and spoke in English.

We selected clips that clearly showed the differences seen in previous research. The two Mexican Indigenous-heritage triads collaborated, helped, observed each other, and used nonverbal conversation; the two middle-class European American triads worked alone and chatted. The clips were similar in other respects, such as the children's enjoyment of the activity and being at the same point in folding (a segment in which an adult was present but not involved with the children).

The clips were played by clicking on still-frame images on a simple menu screen presented on a laptop computer (see Figure 1). Children were shown both clips from one place and then both clips from the other place. The order of presentation of the clips from the two places was counterbalanced, as was their left-right position on the screen.



Figure 1. The menu screen of the DVD used to present the four video clips

The RA explained that the children in the clips were from a school in Mexico and a school in California, referring to the clips as “the ones from Mexico” and “the ones from California.” (Here we abbreviate the Mexican Indigenous-heritage clips as *MexIndigH* clips and the

middle-class European American clips as *MCEurAm* clips.)<sup>1</sup>

The RA asked the pair to focus on the differences between the two schools in how the children work together, explaining that she was interested in their insights because they are kids and might see things that adults could miss. She told them that the children in the videos were shown how to make the frog in exactly the same way as they were and that all the children in the clips finished the folding correctly. She showed each pair the four clips without asking questions or prompting children to talk about what they saw. If they began to discuss the clips, the RA waited before playing the next clip to allow for conversation between the children; she did not enter in.

After watching all four clips with the children, the RA told them that she was going to let them look at the clips together, without her, to get ideas of the differences in how the kids work together on the folding. She checked that the children knew how to play the clips on their own, then asked them to let her know when they were "ready to talk about their ideas about differences in how the kids from the two places work together," and then she sat at a table a few feet away. Both children's conversations with and without the RA present were recorded and analyzed.<sup>2</sup>

**Reflecting on differences.** When the children told her they were ready (or after 5 minutes if they had not called her), the RA rejoined them and asked, "What differences did you notice in how the kids from the two places worked together on the folding?" After the children reported what they noticed, the RA asked a series of focused questions, querying the children if needed to clarify which clips they referred to.

The questions in the first half of the interview were designed to elicit the children's characterizations of differences in how the children from the two places worked together:

1. Did kids from one place *work together more* on the frogs?
2. Did kids from one place *work alone more* on the frogs?
3. Were there differences in how much the kids from the two places *paid attention* to how the other kids were folding? How did they pay attention to each other?
4. Were there differences in how much the kids from the two places

*helped each other fold? What did they do?*

5. Were there differences in how the children from the two places *communicated*?
6. Did the kids from one place *talk less* than others?
7. Were the groups that talked less *communicating in some other way*? How?

The second half of the interview dealt with children's explanations of the reasons for, and the origins of, the differences they had just described:

1. What makes them work together differently? What do you think?
2. How do you think they learned to work together in those ways?
3. Do you think the differences relate to where the kids are from? Why?
4. Which place is most like how you worked together when you folded the frog? What did you do that was most like them?
5. Which of those ways is more like how your parents would want you to act?

The videotaped sessions lasted an average of 25 minutes ( $SD = 3.2$ ), with no significant difference between the two backgrounds in the length of the interview. A procedural check of 50% of the data verified that the script was followed with all participants, with only occasional slight changes in the wording of questions (which did not change their meaning).

## Coding

A bilingual Mexican-heritage coder, blind to the hypotheses, first recorded the pair's words and nonverbal communication, as well as relevant contextual information. She then identified each pair's (not individual children's) statements of differences that related to our questions, in 5 topics (listed below), and she coded whether these statements corresponded with previous research. She also coded the pair's explanations of the differences they reported. Fifty percent of the data were coded for reliability. The 5 topics were:

- *working together* or *working alone* included statements such as: "did it as a group," "cooperated," "did it by themselves," "were independent," or "ignored the others",

- *helping or not helping* included statements such as: “fixed it for them,” or “showed them how,”
- *paying attention to each other or not paying attention to each other* included statements such as: “watched each other,” “monitored her folds,” or “spacing out”,
- *talking more or talking less* included statements such as: “were talkative,” “were quiet” or “didn’t talk”,
- *other forms of communication* included statements such as “talked with their hands and eyes” and “communicated with looks”.<sup>3</sup>

***Raw number of statements regarding each topic.*** The coder segmented the children’s comments into *topic statements*— stretches of conversation that stick to a single topic, ending when a new topic emerges or there is a significant pause in the conversation (such as pausing to play a clip). A topic statement could last for a few words or many conversational turns by one or both children. The raw number of topic statements was reliable across coders: working together,  $r = .90$ ; helping,  $r = .93$ ; paying attention,  $r = .94$ ; amount of talk,  $r = .96$ ; other communication,  $r = .96$ .

***Correspondence with research.*** Each topic statement was coded for whether the children characterized the clips in ways that correspond with previous research — i.e., saying that the *MexIndigH* clips showed more collaboration, helping, paying attention to each other, or nonverbal conversation, or saying that *MCEurAm* clips showed more working alone or talking. The rare cases in which children claimed that there were no differences between the groups or characterized the two clips from the same place differently were judged as contradicting research. If children changed their characterization of a clip within a topic statement, their final opinion was coded for that topic statement. Confusing statements in which the coder could not tell whether the children’s views were consistent with or contradicted the research were counted in the analysis of the raw number of statements of each topic but were not included in the analysis of correspondence with research. (About 10% of statements were confusing, mostly in the topic of helping — seemingly due to Anglo pairs trying to figure out whether it is possible to help without talking — discussed later).

Because the pairs sometimes changed their characterization of a topic in different topic statements across the session, our measure of correspondence with research was the percent of each pair's topic statements for each topic that corresponded with the patterns found in research. The percentage was calculated out of all topic statements that corresponded with research, contradicted research, were inconsistent, or showed disagreement within the pair of children. (Confusing statements were excluded from the calculation of percentages.)

The percentage of topic statements that corresponded with or contradicted research was reliable: working together,  $r = .97$  and  $.99$ , respectively; helping,  $r = .97$  and  $.99$ ; paying attention,  $r = .90$  and  $.88$ ; amount of talk,  $r = .98$  and  $.91$ ; other communication  $r = .83$  and  $1$ .

***Cultural explanations of differences.*** The coder determined whether the pair explained the differences between the two places in terms of *cultural practices*, citing communities' customary ways of working together as enduring practices and generalizing beyond individual habits or features of the particular event. For example, "kids from there are used to working in groups more" or "kids from Mexico use sign language." (The remaining explanations often focused on imagined personality or situational differences that went beyond the information provided in the clips or by the researchers, such as that children in the clip were quiet because they are shy or did not know the other children.) The coding of cultural explanations was reliable,  $r = .83$ ,  $p < .01$ .

## Results

We first present the raw frequency of statements on each topic, and then report the extent to which the children's reflections were consistent with cultural patterns identified in research. Finally, we examine whether the children gave cultural explanations of the differences they noted.<sup>4</sup>

### Raw Number of Statements of Each Topic

The Anglo children talked significantly more than the Mexican-heritage US children, producing 47% more topic statements overall. This pattern of more talking by the Anglo pairs appeared within all 5 topics,

and was significant for all topics except helping and paying attention (see Table 1).

Table 1

*Mean raw frequency (and SD) and significance of statements in the 5 topics and overall, across the two backgrounds*

	Mexican-heritage US	Anglo	<i>significance</i>
Working together	3.1 (1.9)	4.8 (2.9)	$t = 2.33, p = .01$
Helping	7.4 (4.0)	8.4 (5.8)	$t = .71, p = .25$
Paying attention	2.3 (1.8)	2.8 (3.3)	$t = .63, p = .27$
Amount of talk	3.9 (2.5)	7.9 (3.1)	$t = 4.75, p < .001$
Other communication	1.1 (1.0)	2.2 (1.6)	$t = 2.51, p < .01$
Total topic statements	17.8 (6.1)	26.1 (10.5)	$t = 3.24, p < .01$

Tellingly, the Anglo children's greater amount of talking was most notable in their reflections on the amount of talking of the children in the clips. This was partially due to their struggles with determining whether *MexIndigH* clips could be working together or helping if they were not talking. For example, after an Anglo child characterized the *MCEurAm* clips as working together and talking ("They're doing it all together, and they're talking"), he puzzled about the *MexIndigH* clips without coming to a conclusion, "they're not talking at all but they're still doing it, so it's...".

The majority of pairs from both cultural backgrounds talked about all 5 topics.<sup>5</sup> For both backgrounds, the topic of helping was the most frequently mentioned (among the Mexican-heritage US children, almost twice as much as other topics); amount of talk was the next most common topic, then extent of working together, next extent of paying attention, and the least commonly mentioned topic was use of other forms of communication.

There were no main effects for gender in the raw frequency of topic statements, and only one gender interaction: The Mexican-heritage US boys mentioned paying attention more often than Mexican-heritage US girls,  $F(1, 19) = 5.48, p < .05$ .

### Correspondence with Research Patterns

Our analysis focuses on the extent to which children's reports of cultural differences correspond with research describing *MexIndigH* children collaborating, helping, attentive to each other's folding, and using nonverbal conversation, and *MCEurAm* children working primarily solo and chatting. Mexican-heritage US pairs described the clips in ways that correspond with research in 82.5% of statements overall. At least 80% of their statements corresponded with research for all topics except paying attention (see Table 2). In contrast, a significantly lower percentage of Anglo pairs' descriptions corresponded with research (67.5% overall). Less than 60% of Anglo pairs' statements corresponded with research for all topics except for talk and other communication (which agreed with research in over 90% of statements).

Differences between the two backgrounds in statements that contradict research followed the same pattern as statements that correspond with research, but were more extreme. (See Table 2.) The most marked difference between cultural backgrounds was in the topic of working together, where Anglo pairs contradicted research in 63% of their statements, compared with 19% for the Mexican-heritage US pairs.

We tested our prediction — that Mexican-heritage US children would identify cultural patterns consistent with previous research more often than Anglo children — with planned comparisons. These are conservative, focused analyses appropriate to directional predictions (Rosnow & Rosenthal, 1996). In general, our prediction was upheld (See Table 2).

Table 2

*Mean percentage (and SDs) of statements in the 5 topics and overall that corresponded with or contradicted research patterns, across the two backgrounds, and significance*

Topic	Correspond with Research			Contradict Research		
	Mexican-heritage US	Anglo	Planned comparisons	Mexican-heritage US	Anglo	Planned comparisons
Working together	81.1 (33.5)	36.2 (38.6)	$t(41) = 4.04$ , $p < .001$	18.9 (33.5)	63.0 (38.0)	$t(41) = 4.00$ , $p < .001$
Helping	84.9 (18.3)	57.7 (33.8)	$t(42) = 3.26$ , $p = .001$	15.2 (18.4)	41.7 (33.4)	$t(42) = 3.22$ , $p = .001$
Paying attention	71.3 (37.7)	57.2 (45.3)	$t(36) = 1.06$ , $p = .15$	24.5 (34.3)	42.8 (45.4)	$t(36) = 1.41$ , $p = .17$
Amount of talk	81.0 (35.9)	93.5 (10.1)	$t(42) = -1.60$ , $p = .059$	15.1 (32.1)	4.0 (7.1)	$t(42) = -1.60$ , $p = .059$
Other communication	86.7 (35.1)	91.6 (24.3)	$t(32) = -.48$ , $p = .32$	13.3 (35.1)	7.4 (24.2)	$t(32) = -.59$ , $p = .29$
Overall	82.5 (13.9)	67.5 (15.4)	$t(29) = 2.82$ , $p < .01$	12.7 (13.0)	27.7 (16.6)	$t(29) = 2.82$ , $p < .01$

Although the findings fit our prediction in the topics of working together and helping, the difference went in the opposite direction for amount of talk. This pattern seems to stem in part from differences in children's ideas about talk: Some Mexican-heritage US children seemed to regard nonverbal communication as talk, thereby judging the *MexIndigH* clips as including more talk than indicated by researchers who have coded these particular clips, and than the general patterns noted in previous research. In turn, many Anglo children seemed to exclude nonverbal communication as a way of working together and helping, thereby judging the *MexIndigH* clips as including less working together and helping than the coding of these clips by researchers and than general patterns noted in research. We examine the evidence for these interpretations below.

**Working together and Helping.** In line with our expectations,

Mexican-heritage US children's comments showed greater correspondence with research than did Anglo children's, by stating that *MexIndigH* children work together and help each other more than *MCEurAm* children. (See Table 2.) Children from both backgrounds often drew connections between the topics of working together and helping, such as in reasoning, "They worked together by helping each other."

The Anglo children's lower correspondence with research for working together and helping was due in part to a view that because children in *MexIndigH* clips did not talk much, they did not work together or help. Half of the Anglo pairs (11 of 23) mentioned verbal communication as necessary for working together or helping, compared to only 1 such instance among the 21 US Mexican heritage pairs,  $Chi^2$  (1) = 9.1,  $p$  = .003. For example:

One pair, when asked why they thought the children in the *MCEurAm* clips worked together more, referred to the *MexIndigH* children and explained, "because they don't talk."

A child responded to the RA's question "Do kids from one place work alone more on folding the frog?" by commenting "Yeah. Mexico. Definitely... because they're all quiet..."

Some Anglo pairs may have missed the frequent nonverbal interactions in *MexIndigH* clips, but others saw them and did not seem to consider them relevant, as in the following examples:

A pair explained that the *MexIndigH* boys "were helping each other more" than the girls from that background because "She was demonstrating how but she wasn't talking about it. [The boys did more helping] 'cause they were talking about it."

A child commented that the *MexIndigH* girls were "less talkative," and the partner agreed, "They aren't helping each other or telling them what to do." The first child laughingly elaborated, "Yeah. They're just kinda playing around with them and... stealing them [referring to a girl in the clip taking over work on girl's figure]." The second child clarified that "They were showing them" and the first child specified the need to talk for helping: "Yeah, but they weren't exactly like,

“talking,” and contrasted the clip with the *MexIndigH* boys’ clip, “They’re talking. They might be helping each other.”

There was only one gender difference in statements corresponding with or contradicting research. Girls from both cultural backgrounds described working together in ways that correspond with previous research more often than boys,  $F = 4.53, p = .04$ . This difference was most notable among Mexican-heritage US participants,  $F = 10.33, p < .01$ .

**Amount of talk and Other communication.** Both Mexican-heritage US and Anglo children’s statements discussing the extent of talk corresponded highly with research, in saying that the *MexIndigH* children talked less than the *MCEurAm* children. Contrary to expectation, the Anglo children’s statements corresponded at least as much with research as did those of the Mexican-heritage US children, almost significantly more than the Mexican-heritage US children.<sup>6</sup>

Children from both cultural backgrounds also noted that the *MexIndigH* children communicated in ways other than talk (ns), such as “with their eyes and their hands,” “looking at each other instead of talking,” “body language kinda,” “helping each other, like by eyes... and like with their hands... like if they could help them, like, fold,” “One person held up the other person’s frog and like they pointed to something and then they – and then the other person like nodded and then the person did something with it.”

Despite the children’s general agreement across cultural backgrounds about the extent of talk and other communication, there seemed to be differences in the ways talk was conceptualized. Three Mexican-heritage US pairs stated that children in the *MCEurAm* clips talked *less*, although these clips contained many more spoken words than the *MexIndigH* clips. Their comments suggested that they may have considered nonverbal communication to be a form of talk and, perhaps, they may have excluded the kind of off-task chat that occurred in the *MCEurAm* clips. For example, one Mexican-heritage US pair stated that the *MCEurAm* children were not communicating and gave the *MexIndigH* children’s helping as evidence that they were communicating. Another pair

noted that the children in the *MexIndigH* clips “talk with their hands and they [referring to the chatting in the *MCEurAm* clips] just talked about all kinds of things.”

Thus children from the two backgrounds often differed in their ideas about spoken words and nonverbal communication. Whereas some of the Mexican-heritage US children seemed to include nonverbal conversation in their definition of talk, many of the Anglo children seemed to see spoken words as necessary for working together or helping.

**Paying attention.** The trend for the Mexican-heritage US children’s characterizations of paying attention to correspond more often with research, compared to Anglo children’s characterizations, did not reach significance. (See Table 2.)

### Cultural Explanations of Differences

Few pairs of either background explained the differences between places despite interview questions geared to elicit these explanations. The pairs that gave explanations generally gave only one or two across the whole session. The explanations given by children of both cultural backgrounds usually focused on the *MexIndigH* clips or contrasted the *MexIndigH* clips with the *MCEurAm* clips. This may suggest that children from both backgrounds see the middle-class European American ways of interacting as the norm.

Mexican-heritage US pairs gave cultural explanations of the differences they saw more often than Anglo pairs (12 vs 9 of the pairs, respectively,  $t = 1.86$ ,  $p < .05$ ). The most common cultural attribution that emerged from the data was related to the Mexican cultural practice of *respeto* (consideration). Seven of the Mexican-heritage US pairs referred to the *MexIndigH* children as showing more *respeto* as a reason for the differences in the clips. When asked the interview question concerning whether respect related to the differences in how much children in the videos talked, five Anglo pairs mentioned that the *MexIndigH* children were respectful.

Some Mexican-heritage US pairs elaborated with connections between *respeto* and taciturnity that focused on not disturbing the activities of others and helping others when possible. One pair said

that talking through the whole video would be disrespectful. Another child explained,

“People in classes don’t have to scream because the teacher might be doing something, or the teacher might be taking a test with this kid... if you’re done and somebody’s not you have to be quiet because they’re still not finished.”

One pair characterized the *MCEurAm* children as acting immature and disrespectful, by contrasting them with a *MexIndigH* child who “was honoring and like, not going crazy”. Some of the Anglo children also elaborated, noting that the *MexIndigH* children’s respectful approach allowed their peers time for quiet concentration, allowed others to focus, and avoided interrupting their work.

Three of the Mexican-heritage US pairs mentioned helping as a way of showing *respeto* and two of these pairs suggested that this helping included not speaking. One group said, “The Mexicans are helping and being really quiet so people don’t get really distracted.” Another pair explained that Mexican kids learn to work the way they do because “they’ve seen so many people help each other that they just knew... if somebody needed help that they could help them.” The Mexican-heritage children’s explanations fit with portrayals of *respeto* as a practice of mutual support and recognizing the individual as a part of a larger whole (López et al., in press; Ramírez Sánchez, 2007; Ruvalcaba, Rogoff, López, Correa-Chávez, & Gutiérrez, 2011; Valdés, 1996).

A few cultural explanations focused on schools, teachers, and parents of one place or the other encouraging children to work together or work harder. One Mexican-heritage US pair said, “In Mexico the teachers show how to work together,” and an Anglo pair explained “a lot of schools in California really focus on like, working together. Like you learn that in kindergarten.” Three Mexican-heritage US pairs explained that teachers and parents make children work harder in Mexico.

Some of the remaining cultural explanations dealt with issues of poverty or resources (offered by 2 Mexican-heritage US pairs and 2 Anglo pairs). For example, two Mexican-heritage US pairs suggested

that Mexican practices were influenced by economic hardship and the need to appreciate opportunities to learn and work, such as “They’re poor. So they take more care in their work.”

No explanations were offered to explain why Anglo pairs talked more. This is consistent with the suggestion that children from both backgrounds acknowledged middle-class European American ways of interacting as normative.

## Discussion

Our findings indicate that compared with Anglo children, bilingual Mexican-heritage US children more often identified cultural differences between Mexican and Anglo children’s ways of working together and helping in accord with patterns found in previous research. The pattern was similar but not significant in the topic of paying attention to each other. The finding that Mexican-heritage US children commented much more about helping than the other topics may fit with the centrality of helping without being asked (being *acomodido*) in some Mexican communities (López et al., *in press*; Ramírez Sánchez, 2007).

The pattern of greater correspondence with research by the Mexican-heritage US children was not upheld in the children’s statements regarding which groups talked more or communicated in other ways: The Anglo children’s statements were at least as likely to correspond with research. However, the children’s explanations yielded interesting differences in what counts as talk and the role of talk in working together and helping. We discuss these below after considering the expected findings in working together and helping.

### Awareness of Cultural Patterns of Working Together

The finding that the Mexican-heritage US children discussed working together and helping in ways that corresponded with research more often than the Anglo children may relate to their bicultural experience giving them greater sensitivity to noticing cultural practices. Bicultural experience may allow children and adults to move more fluidly across

cultural contexts, to adapt more readily to distinct cultural practices, and enhance understanding of others' perspectives (Orellana, 2009; Quintana, 2008). Such a "transcultural disposition" (Orellana, 2009) may enhance social-emotional understanding and performance on theory of mind tasks (Hoffman, 2008), as well as reflections on use of different languages and registers across contexts (Zentella, 1997).

Although children who have experience with more than one repertoire of cultural practice may develop an understanding of culture and of which approach to use in which situation (Gutiérrez & Rogoff, 2003; Rogoff, 2003), this experience can be challenging. Indeed, learning the social conventions of schools may require significant cognitive effort for children unfamiliar with them, because they are neither self-evident nor often explained (Buchanan-Barrow, 2005; Smetana, 1993). In the US, the social organization common in schools is often treated as normative, which may create difficulties for children whose home practices differ from what they encounter in school (Delpit, 1995).

Awareness of multiple cultural ways may provide a measure of protection to minority children against feeling alienated or unwelcome in schools where cultural patterns of interaction may differ from those of their homes and where home practices may be deprecated (Hurtado & Gurin, 2004; Yosso, Smith, Ceja, & Solorzano, 2009). Acknowledging and appreciating distinct cultural practices may enable minority children to establish a positive sense of community and a positive group identity (Apfelbaum, 1979).

## **Cultural Differences in Concepts of Talk and Nonverbal Communication**

The Anglo children talked more in discussing the differences between the clips, themselves exemplifying one of the cultural differences found in prior research: More extensive talk has been noted among European American middle-class populations than among Indigenous-heritage populations of the Americas under some circumstances (Deyhle & Swisher, 1997; Paradise & Rogoff, 2009).

Many of the Anglo children seemed to regard verbal talk as necessary for working together and helping. They struggled with how to characterize the clips showing Mexican Indigenous-heritage children

collaborating nonverbally, and half of the Anglo pairs claimed that helping or working together could not occur without words. This is consistent with interviews that suggest that European American middle-class adults interpret talk as an indicator of learning and engagement (Kim, 2002; Li, 2005). The Anglo children in this study tended to focus on talk as the normative means of interaction. One Anglo child said that the middle-class European American children “were like more outgoing, talking to each other like a normal child.”

In contrast, several US Mexican-heritage children seemed to use a more inclusive definition of talk as including nonverbal communication, “talking with their hands and eyes.” This finding fits with the idea that emphasis on articulate nonverbal as well as verbal communication is common in some Indigenous and Mexican-heritage communities (Mejia-Arauz et al., 2007a, b; Ruvalcaba et al., 2011).

The findings may also relate to the cultural value of *respeto*, a form of consideration valued in Mexico, in which people pay attention to the direction of the group, use subtle forms of communication, and avoid interrupting others’ activities (Ruvalcaba et al., 2011; Valdés, 1996; see also Deyhle & Swisher, 1997). About half of the Mexican-heritage US children characterized extensive talk as lacking in *respeto* or being rude (e.g., “It is rude to talk through the whole video”).

In sum, the study indicates that bilingual Mexican-heritage US children’s reflections on how other children help and work together correspond more with research identifying cultural patterns of interaction than do those of middle-class European American children. The insights provided by the children’s reflections support the idea of distinct cultural patterns of social organization (Rogoff et al., 2003, 2007). The US Mexican-heritage children’s reflections are consistent with a pattern of community contribution involving collaboration, helping, and communicating in ways that do not interrupt the activities of others, such as using nonverbal conversation. In contrast, the Anglo children’s reflections point to an emphasis on talk as a key aspect of working together and helping others.

The findings suggest that schools and other mainstream institutions could build on bilingual children’s possible greater awareness of cultural patterns. In addition, their service to children would benefit

from an awareness of distinct cultural patterns in how children view working together, helping, and the role of talk and nonverbal conversation.

### **Acknowledgments**

We are grateful for the thoughtful reflections of the children in this study and for the participation of Valencia and Bay View elementary schools, the Santa Cruz Boys and Girls Club, La Familia Center, and Barrios Unidos. We also appreciate the children whose videoclips were used in the interviews. We thank Andrea Martinez and Juanita Correa for their work in data collection and coding and Maureen Callanan, Kris Gutiérrez, Rebeca Mejía Aráuz, Maricela Correa-Chávez, Brigitte Jordan, Nancy Trinh, Suzanne Gaskins, Kathryn Burleson, Carly Friedman, Debbie Siegel, and Paloma Visscher for their comments on the study and the manuscript. The research was funded by the National Science Foundation Center for Informal Learning and Schools (NSF # ESI-0119787/SFE), a grant from the National Science Foundation (# 0837898; any opinions, findings, and conclusions are those of the authors and do not necessarily reflect the views of the NSF), a training grant from the National Institutes of Health (#T32HD046423-10), and an endowed chair from the University of California at Santa Cruz.

### **Notes**

<sup>1</sup> Children from both backgrounds often referred to the clips as “Mexican” and “American” or “from the US.” A few Anglo children referred to the clips as “Spanish” and “English.” Three Mexican-heritage US pairs used filial terms, such as “us Mexicans”, “our people,” or “we do it like this.”

<sup>2</sup> The few statements that occurred spontaneously, prior to questioning, fit the same pattern as statements in response to the questions.

<sup>3</sup> The patterns were similar within and between backgrounds when complementary topics (*MexIndigH* work together vs. *MCEurAm* work alone, helping vs. not helping, paying attention vs. not paying attention, and talking more vs. talking less) were examined separately. Therefore, we do not distinguish these complementary ways of describing differences.

<sup>4</sup> We also examined negative value judgments, which used disparaging words, tone, or expression. The few pairs who made these averaged about 1 per session (ns). Eight were about the *MexIndigH* children. Four Anglo pairs suggested that the *MexIndigH* children were immature or inexperienced and two characterized them as less smart or less able than the *MCEurAm* children. The two negative value judgments made by Mexican-heritage US children regarding the *MexIndigH* clips characterized them as unsophisticated and dirty or less smart because their teachers help them less.

Two pairs from each background made negative value judgments about *MCEurAm* clips; they suggested that the children in the *MCEurAm* clips were messing around or acting immature and disrespectful. In addition, one of these pairs from each cultural background suggested that the children in the *MCEurAm* clips were less smart or less able.

<sup>5</sup> Eight Mexican-heritage US pairs and 5 Anglo pairs did not mention one or more of the 5 topics, ns. The most commonly omitted topic was that of other communication.

<sup>6</sup> In addition to the planned comparison, a regular t-test also showed no significant difference between the backgrounds in the percent of topic statements about talk that corresponded with research.

## References

Apfelbaum, E. (1979). Relations of domination and movements for liberation. In W. G. Austin, S. Worchel (Eds.), *The social psychology of intergroup relations*. (pp. 188-204). Monterey, CA: Brooks/Cole.

Bialystok, E., Craik, F.I.M., Green, D.W., & Gollan, T.H. (2009). Bilingual minds. *Psychological Science in the Public Interest*, 10, 89-129.

Buchanan-Barrow, E. (2005). Children's understanding of the school. In Barrett, M., & Buchanan-Barrow, E. (Eds.), *Children's understanding of society*. (pp. 349-369). NY: Psychology Press.

Brown, B. A. (2006). "It isn't no slang that can be said about this stuff": Language, identity, and appropriating science discourse. *Journal of Research in Science Teaching*, 43(1), 96-126.

Candela, A. (2005). Students' participation as co-authoring of school institutional practices. *Culture & Psychology*, 11(3), 321–337.

Cazden, C., & John, V. (1971). Learning in American Indian children. In M. L. Wax, S. Diamond, F. O. Gearing (Eds.), *Anthropological perspectives on education* (pp. 252-272). NY: Basic.

Chavajay, P., & Rogoff, B. (2002). Schooling and traditional collaborative social organization of problem solving by Mayan mothers and children. *Developmental Psychology*, 38(1), 55-66.

Chamoux, M. N. (1992). Aprendiendo de otro modo. In M.-N. Chamoux (Ed.), *Trabajo, técnicas y aprendizaje en el México indígena* (pp. 73-93). Mexico City: Centro de Investigaciones y Estudios Superiores en Antropología Social, Ediciones de la Casa Chata.

Correa-Chávez, M., Rogoff, B., & Mejía Arauz, R. (2005). Cultural patterns in attending to two events at once. *Child Development*, 76, 664-678.

Correa-Chávez, M., Roberts, A. L. D., & Martínez Pérez, M. (2011). Cultural patterns in children's learning through keen observation and participation in their communities. In: J. Benson (Ed.). *Advances in Child Behavior and Development, Vol 40*, (pp. 209-241). Waltham, Massachusetts: Academic Press.

de Haan, M. (1999). *Learning as cultural practice: How children learn in a Mexican Mazahua community*. Amsterdam: Thela Thesis.

de León, L. (2000). The emergent participant: Interactive patterns in the socialization of Tzotzil (Mayan) infants. *Journal of Linguistic Anthropology*, 8, 131-161.

Delpit, L. (1995). *Other people's children*. NY: New Press.

Deyhle, D., & Swisher, K. (1997). Research in American Indian and Alaska Native education. In M. W. Apple (Ed.), *Review of Research in Education*, 22, 113-194.

Erickson, F. (1987). Transformation and school success. *Anthropology and Education Quarterly*, 18, 335-356.

Gaskins, S. (1999). Children's daily lives in a Mayan village. In A. Goncü (Ed.), *Children's engagement in the world*. (pp. 25-60). New York: Cambridge.

Gutiérrez, K., & Rogoff, B. (2003). Cultural ways of learning: Individual traits or repertoires of practice. *Educational Researcher*, 32(5), 19-25.

Heath, S. B. (1983). *Ways with words*. Cambridge: Cambridge University Press.

Hoffman, E. (2008). *Assessing the relationship between childhood bilingualism and social-emotional understanding*. Dissertation Abstracts International: Section B: The Sciences and Engineering, 68 (10-B).

Hurtado, A. & Gurin, P. (2004). *Chicana/o identity in a changing U.S. society, Quién soy? Quiénes somos?* Tucson: University of Arizona Press.

Keller, H., Lamm, B., Abels, M., Yovsi, R., Borke, J., Jensen, H., Papaligoura, Z., Holub, C., Lo, W., Tomiyama, A. J., Su, Y., Wang, Y., & Chaudhary, N. (2006). Cultural models, socialization goals, and parental ethnotheories. *Journal of Cross-Cultural Psychology*, 37(2), 155-172.

Kim, H. S. (2002). We talk, therefore we think? A cultural analysis of

the effect of talking on thinking. *Journal of Personality and Social Psychology, 83*, 828-842.

Laosa, L. M. (1980). Maternal teaching strategies in Chicano and Anglo-American families. *Child Development, 51*, 759-765.

Li, J. (2005). Mind or virtue: Western and Chinese beliefs about learning. *Current Directions in Psychological Science, 14*, 190-194.

Lipka, J. (1994). Schools failing minority teachers. *Educational Foundations, 8*, 57-80.

López, A., Correa-Chávez, M., Rogoff, B., & Gutiérrez, K. (2010). Attention to instruction directed to another by U.S. Mexican-heritage children of varying cultural backgrounds. *Developmental Psychology, 46*(3), 593-601.

López, A., Najafi, B., Rogoff, B., & Mejía-Arauz, R. (in press). Collaboration and helping as cultural practices. In J. Valsiner (Ed.), *Oxford handbook of culture and psychology*. NY: Oxford University Press

Lorente, D. F. (2006). Infancia Nahua y transmisión de la cosmovisión. *Boletín de Antropología, 20*(37), 152-168.

Marks, A. K., Szalacha, L. A., Lamarre, M., Boyd, M. J., & García Coll, C. (2007). Emerging ethnic identity and interethnic group social preferences in middle childhood. *International Journal of Behavioral Development, 31*, 501-513.

McNaughton, S. (2005). Classroom discourse and culture. *Culture and Psychology, 11*(3), 377-384.

Mejía Arauz, R., Roberts, A. L. D., & Rogoff, B. (2007a, July). *Cultural variation in children's organization of participation through nonverbal conversation*. XXXI International Congress of Psychology, Mexico City.

Mejía Arauz, R., Rogoff, B., Najafi, B., & Dexter, A. L. (2007b). Cultural variation in children's participation in a shared activity. *Child Development, 78*(3), 1001-1014.

Mejía Arauz, R., Rogoff, B., & Paradise, R. (2005). Cultural variation in children's observation during a demonstration. *International Journal of Behavioral Development, 29*, 282-291.

Orellana, M. F. (2009). *Translating childhoods: Immigrant youth, language, and culture*. NJ: Rutgers University Press.

Paradise, R. (1994). Interactional style and nonverbal meaning: Mazahua children learning how to be separate-but-together. *Anthropology & Education Quarterly*, 25(2), 156-172.

Paradise, R. (1996). Passivity or tacit collaboration: Mazahua interaction in cultural context. *Learning and Instruction*, 6(4), 379-389.

Passel, J. (2004). *Mexican immigration to the US*. Retrieved from Migration Information Source website: <http://www.migrationinformation.org/usfocus/display.cfm?ID=208>

Philips, S. U. (1972). Participant structures and communicative competence. In C. Cazden, V. John, & D. Hymes, (Eds.). *Functions of language in the classroom*. (pp. 245-253). Long Grove, Illinois: Waveland.

Quintana, S. M. (2008). Racial perspective taking ability. In S. M. Quintana & C. McKown (Eds.), *Handbook of race, racism, and the developing child*. Hoboken, NJ: Wiley.

Ramírez Sánchez, M. A. (2007). "Helping at home": The concept of childhood and work among the Nahuas of Tlaxcala, Mexico. In B. Hungerland, M. Liebel, B. Milne & A. Wihstutz (Eds.), *Working to become*. (pp. 87-98). Philadelphia: Jessica Kingsley Publishers.

Rogoff, B. (2003). *The cultural nature of human development*. NY: Oxford University Press.

Rogoff, B., Mistry, J., Göncü, A., & Mosier, C. (1993). Guided participation in cultural activity by toddlers and caregivers. *Monographs for the Society for Research in Child Development*, 58(8), 1-174.

Rogoff, B., Paradise, R., Mejia Arauz, R., Correa-Chávez, M., & Angelillo, C. (2003). Firsthand learning through intent participation. *Annual Review of Psychology*, 54, 175-203.

Rogoff, B., Moore, L., Najafi, B., Dexter, A., Correa-Chávez, M., & Solís, J. (2007). Children's development of cultural repertoires through participation in everyday routines and practices. In J. Grusec & P.D. Hastings (Eds.), *Handbook of socialization*. (pp. 490-515). NY: Guilford.

Rosnow, R., & Rosenthal, R. L. (1996). Contrasts and interactions

redux. *Psychological Science*, 7(4), 253-257.

Ruvalcaba, O., Rogoff, B., López, A., Correa-Chávez, M., & Gutiérrez, K. (2011). *Nonverbal respecto in requests for help by Mexican heritage and European-heritage children*. Manuscript submitted for publication.

Sharan, Y., & Sharan, S. (1992). *Expanding cooperative learning through group investigation*. NY: Teachers College Press.

Smetana, J. G. (1993). Understanding of social rules. In M. Bennett (Ed.), *The development of social cognition*. (pp. 111-141). NY: Guilford.

Tapia Uribe, F. M., LeVine, R. A., & LeVine, S. E. (1993). Maternal education and maternal behavior in Mexico. *International Journal of Behavioral Development*, 16(3), 395-408.

Valdés, G. (1996). *Con respeto*. Berkeley: University of California Press.

Yosso, T. J., Smith, W. A., Ceja, M., & Solórzano, D. G. (2009). Critical race theory, racial microaggressions, and campus racial climate for Latina/o undergraduates. *Harvard Educational Review*, 79, 659-690.

Zentella, A. C. (1997). *Growing up bilingual*. NY: Blackwell.

**Amy L. D. Roberts** is Assistant Professor in the Department of Developmental Psychology at Roosevelt University, United States of America.

**Barbara Rogoff** is a UCSC Foundation Distinguished Professor of Psychology in the Department of Psychology at the University of California, Santa Cruz, United States of America.

**Contact Address:** Direct correspondence to Amy Roberts at Roosevelt University, Rm 360-N, 1400 N. Roosevelt Blvd, Schaumburg, IL 60173 or at [aroborts06@roosevelt.edu](mailto:aroborts06@roosevelt.edu)